

FCC Test Report

Product	Personal Computer
Machine Type / Model No.	IdeaCentre A540-24API
FCC ID.	A5MA540-24APIWC

Applicant	Lenovo (Beijing) Ltd.
Address	201-H2-6, Floor 2, Building 2, No.6 Shangdi West Road, Haidian District, Beijing, China 100085

Date of Receipt	May. 23, 2019
Issued Date	June. 25, 2019
Report No.	1950371R-RFUSP20V00
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

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Test Report

Issued Date: June. 25, 2019

Report No.: 1950371R-RFUSP20V00



Product	Personal Computer
Applicant	Lenovo (Beijing) Ltd.
Address	201-H2-6, Floor 2, Building 2, No.6 Shangdi West Road, Haidian District, Beijing, China 100085
Manufacturer	1. Asia Vital Components (Dongguan) Co., Ltd. 2. Lenovo Centro Tecnologico S DE RL DE CV
Machine Type / Model No.	IdeaCentre A540-24API
FCC ID.	A5MA540-24APIWC
EUT Rated Voltage	AC 100-240V, 50-60Hz
EUT Test Voltage	AC 110V, 50Hz
Trade Name	Lenovo
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2018 ANSI C63.4: 2014, ANSI C63.10: 2013
Test Result	Complied

Documented By :



(Senior Adm. Specialist / Leven Huang)

Tested By :



(Engineer / Anson Lu)

Approved By :



(Director / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product	Personal Computer
Trade Name	Lenovo
Machine Type / Model No.	IdeaCentre A540-24API
FCC ID.	A5MA540-24APIWC
Frequency Range	110~145kHz
Antenna Type	Coil Antenna
Keyboard	MFR: Lenovo, M/N: EMS-537A
Mouse	MFR: Lenovo, M/N: SK-8823
ODD	MFR: Lenovo, M/N: HL GUEIN
USB Cable	Non-Shielded, 0.45m
Power Adapter	MFR: DELTA, M/N: ADP-150BH B Input: AC 100-240V, 50-60Hz, 2A Output: 20V $\overline{=}$ 7.5A Cable In: Non-shielded, 1.05m Cable Out: Non-shielded, 1.90m, with one ferrite core bonded.

Frequency of Channel:

Channel	Frequency
Channel 1:	125kHz

Note:

1. The EUT is a Personal Computer with a built-in 110~145kHz transceiver.
2. These tests were radiated on a sample of the equipment for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.209
3. Only the higher Fundamental Radiated Emission channel was tested and recorded in this report.

Test Mode	Mode 1: Transmit 5V Mode 2: Transmit 12V
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1.3. Test System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

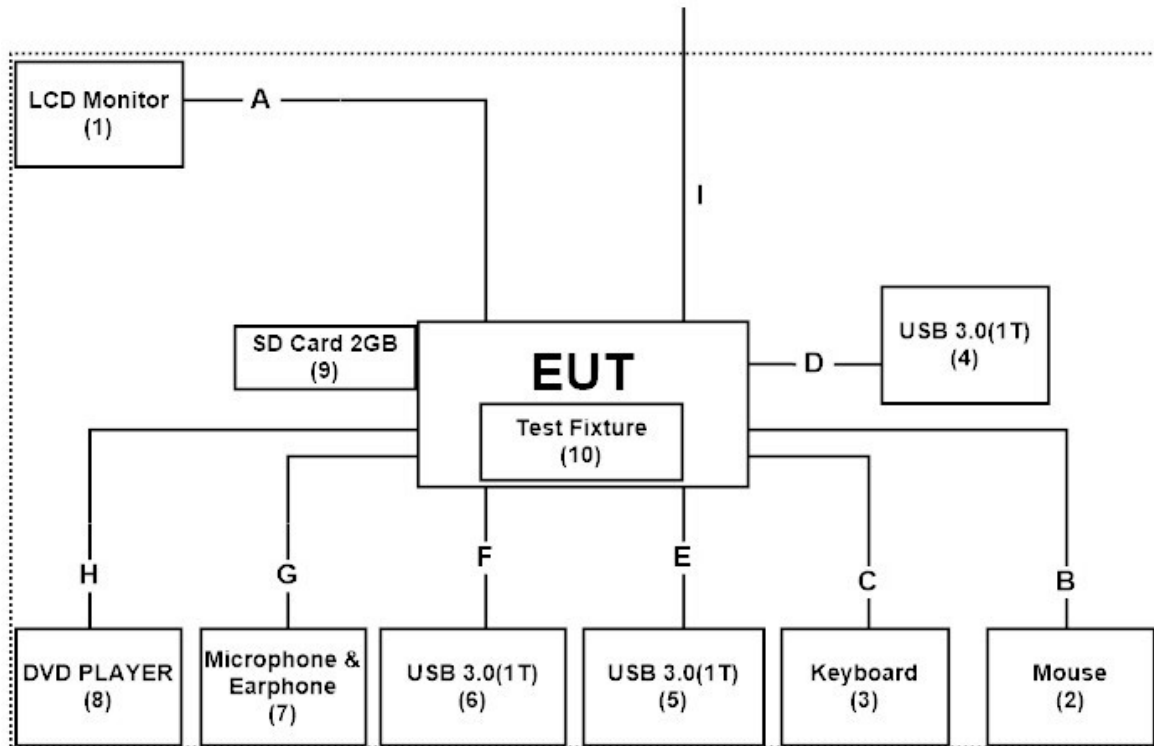
Product	Manufacturer	Model No.	Serial No.	Power Cord
1 LCD Monitor	ASUS	VS229HA	F4LMQS135395	Non-Shielded, 1.8m
2 Mouse	Lenovo	SK-8823	933280428	N/A
3 Keyboard	Lenovo	EMS-537A	812082U8	N/A
4 USB 3.0(1T)	Transcend	TS1TSJ25M3	C13890-3746	Non-Shielded, 0.4m
5 USB 3.0(1T)	Transcend	TS1TSJ25M3	C13890-3746	Non-Shielded, 0.4m
6 USB 3.0(1T)	Transcend	TS1TSJ25M3	C13890-3746	Non-Shielded, 0.4m
7 Microphone & Earphone	Ergotech	ET-E201	N/A	Non-Shielded, 1.65m
8 DVD PLAYER	Pioneer	DV-600AV	GJKD006378LS	Non-Shielded, 1.8m
9 SD Card 2GB	Transcend	BE1014314401G	3430631 8398	N/A
10 Test Fixture	N/A	N/A	N/A	N/A

Note:

1. The Test Fixture is a cement resistor(30W5Ω).

Signal Cable Type	Signal cable Description
A HDMI Cable	Non-Shielded, 1.8m
B Mouse Cable	Non-Shielded, 1.7m
C Keyboard Cable	Non-Shielded, 1.8m
D USB Cable	Non-Shielded, 0.4m
E USB Cable	Non-Shielded, 0.4m
F USB Cable	Non-Shielded, 0.4m
G Signal Cable	Non-Shielded, 1.65m
H HDMI Cable	Non-Shielded, 1.8m
I Network Cable	Non-Shielded, 1.65m

1.4. Configuration of Test System



1.5. EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4
- (2) Turn on the power of all equipment.
- (3) Start the continuous transmitter.
- (4) Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:

<http://www.dekra.com.tw/english/about/certificates.aspx?bval=5>

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: http://www.dekra.com.tw/index_en

Site Description: Accredited by TAF
Accredited Number: 3023

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Site Address: No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451,
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FCC Accreditation Number: TW3023

1.7. List of Test Equipment

For Conducted measurements /CB3/SR8

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
	Temperature Chamber	WIT GROUP	TH-1S-B	EQ-201-00146	2019/02/12	2020/02/11
X	Spectrum Analyzer	Agilent	N9010A	MY48030495	2018/10/13	2019/10/12
	Peak Power Analyzer	Keysight	8990B	MY51000410	2018/08/01	2019/07/31
	Wideband Power Sensor	Keysight	N1923A	MY56080003	2018/07/25	2019/07/24
	Wideband Power Sensor	Keysight	N1923A	MY56080004	2018/07/25	2019/07/24
X	EMI Test Receiver	R&S	ESCS 30	100369	2018/11/07	2019/11/06
X	LISN	R&S	ESH3-Z5	836679/017	2019/02/09	2020/02/08
X	LISN	R&S	ENV216	100097	2019/02/09	2020/02/08
X	Coaxial Cable	DEKRA	RG 400	LC018-RG	2019/06/21	2020/06/20

For Radiated measurements /Site3/CB8

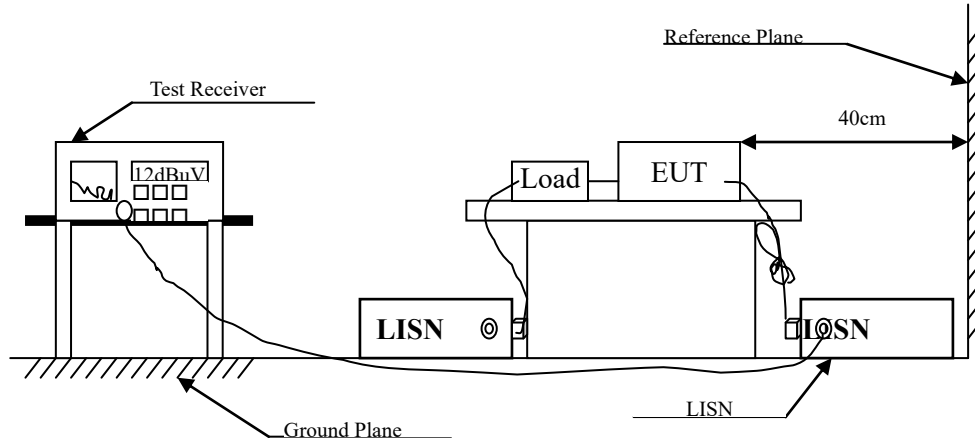
	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
X	Spectrum Analyzer	R&S	FSP40	100170	2019/03/12	2020/03/11
X	Loop Antenna	Teseq	HLA6121	37133	2018/10/13	2019/10/12
X	Bilog Antenna	Schaffner Chase	CBL6112B	2707	2019/06/24	2020/06/23
X	Coaxial Cable	DEKRA	RG 214	LC003-RG	2019/06/14	2020/06/13
X	Pre-Amplifier	Jet-Power	JPA-10M1G33	170101000330010	2019/06/14	2020/06/13
	Horn Antenna	ETS-Lindgren	3117	00135205	2019/05/03	2020/05/02
	Horn Antenna	SCHWARZBECK	9120D	576	2018/11/30	2019/11/29
	Pre-Amplifier	EMCI	EMC012630SE	980210	2019/04/10	2020/04/09
	Horn Antenna	Com-Power	AH-840	101043	2019/01/09	2020/01/08
	Amplifier + Cable	EMCI	EMC184045SE	980370	2019/03/21	2020/03/20
	Filter	MICRO-TRONICS	BRM50702	G270	2018/08/06	2019/08/05
	Filter	MICRO-TRONICS	BRM50716	G196	2018/08/06	2019/08/05

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version :QuiTek EMI 2.0 V2.1.113.

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56 _(註)	56-46 _(註)
0.50-5.0	56	46
5.0 - 30	60	50

2.3. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

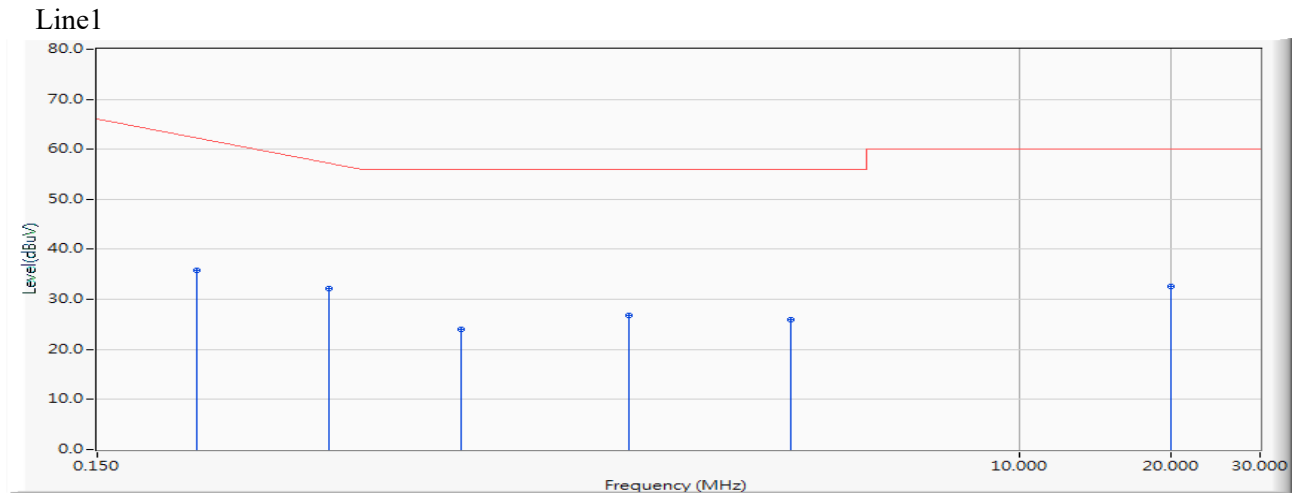
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.4. Uncertainty

± 2.26 dB

2.5. Test Result of Conducted Emission

Product : Personal Computer
 Test Item : Conducted Emission Test
 Test Site : No.SR8
 Test Date : 2019/06/20
 Test Mode : Mode 1: Transmit 5V

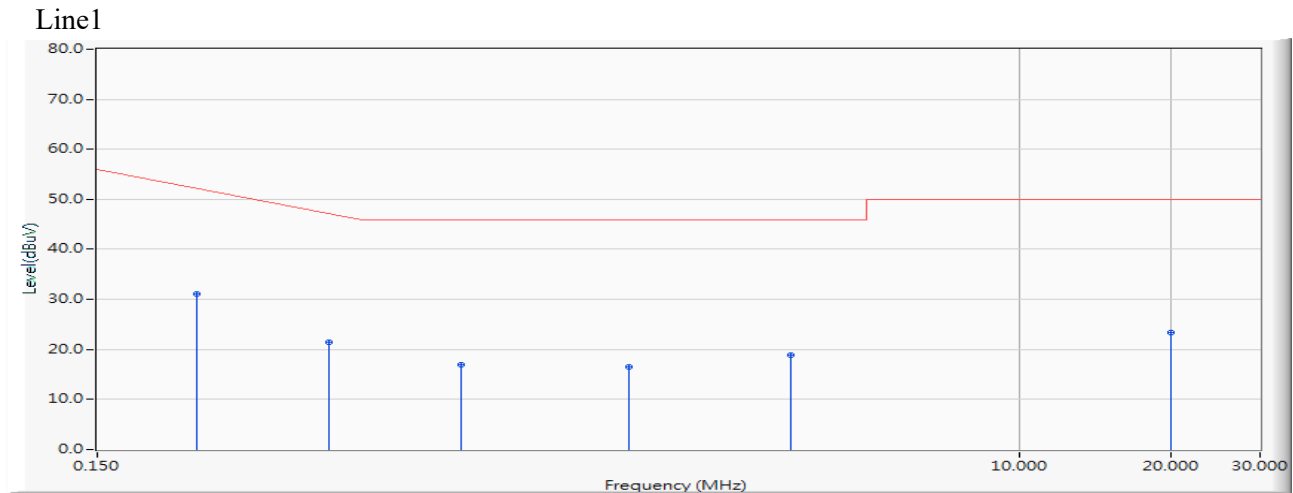


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.236	9.659	26.160	35.819	-27.724	63.543	QUASIPeAK
2	*	0.431	9.667	22.480	32.147	-25.824	57.971	QUASIPeAK
3		0.787	9.682	14.300	23.982	-32.018	56.000	QUASIPeAK
4		1.689	9.729	17.180	26.909	-29.091	56.000	QUASIPeAK
5		3.537	9.790	16.060	25.850	-30.150	56.000	QUASIPeAK
6		19.962	10.151	22.540	32.691	-27.309	60.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Personal Computer
 Test Item : Conducted Emission Test
 Test Site : No.SR8
 Test Date : 2019/06/20
 Test Mode : Mode 1: Transmit 5V



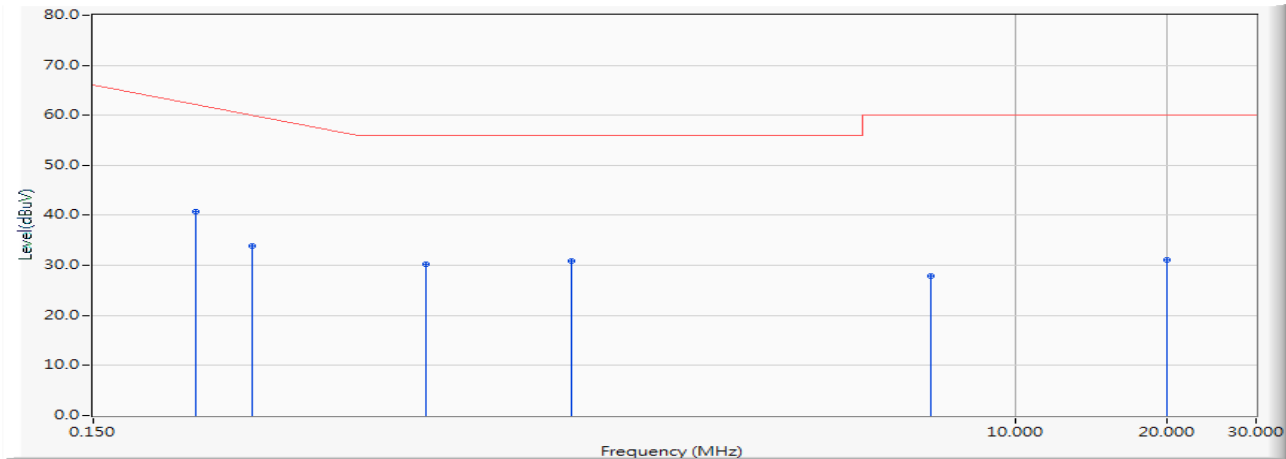
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.236	9.659	21.430	31.089	-22.454	53.543	AVERAGE
2		0.431	9.667	11.800	21.467	-26.504	47.971	AVERAGE
3		0.787	9.682	7.200	16.882	-29.118	46.000	AVERAGE
4		1.689	9.729	6.730	16.459	-29.541	46.000	AVERAGE
5		3.537	9.790	9.020	18.810	-27.190	46.000	AVERAGE
6		19.962	10.151	13.300	23.451	-26.549	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Personal Computer
 Test Item : Conducted Emission Test
 Test Site : No.SR8
 Test Date : 2019/06/20
 Test Mode : Mode 1: Transmit 5V

Line2



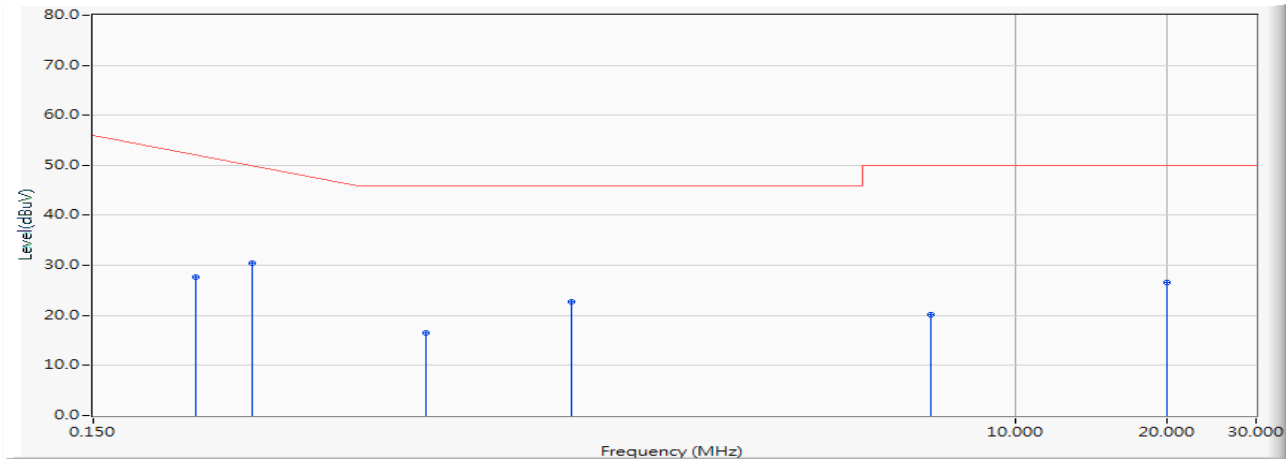
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.240	9.689	31.160	40.849	-22.580	63.429	QUASIPeAK
2		0.310	9.692	24.200	33.892	-27.537	61.429	QUASIPeAK
3		0.685	9.708	20.480	30.188	-25.812	56.000	QUASIPeAK
4		1.322	9.744	21.120	30.864	-25.136	56.000	QUASIPeAK
5		6.798	9.944	18.000	27.944	-32.056	60.000	QUASIPeAK
6		19.935	10.331	20.820	31.151	-28.849	60.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Personal Computer
 Test Item : Conducted Emission Test
 Test Site : No.SR8
 Test Date : 2019/06/20
 Test Mode : Mode 1: Transmit 5V

Line2



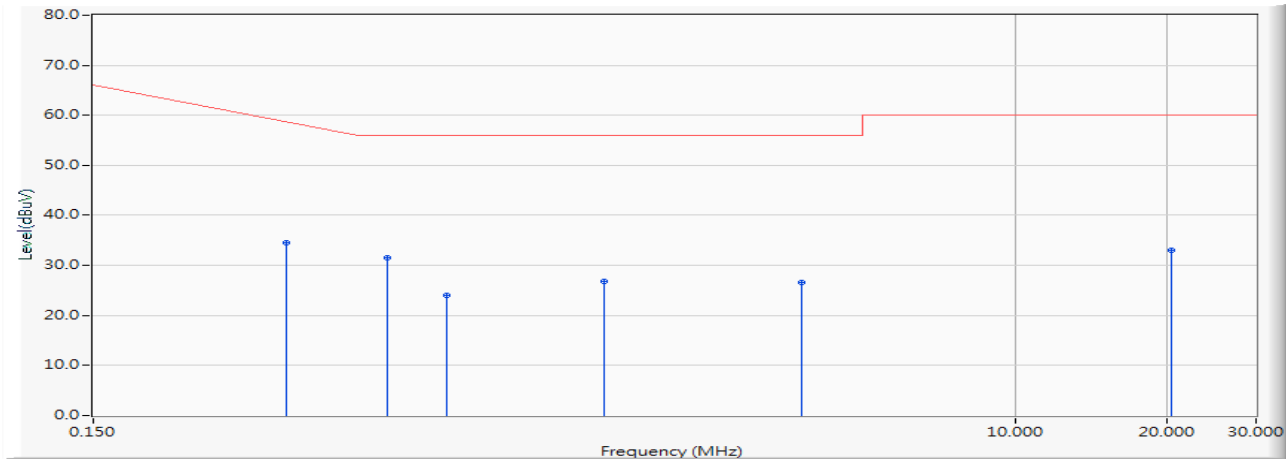
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.240	9.689	18.040	27.729	-25.700	53.429	AVERAGE
2	*	0.310	9.692	20.870	30.562	-20.867	51.429	AVERAGE
3		0.685	9.708	6.890	16.598	-29.402	46.000	AVERAGE
4		1.322	9.744	12.910	22.654	-23.346	46.000	AVERAGE
5		6.798	9.944	10.300	20.244	-29.756	50.000	AVERAGE
6		19.935	10.331	16.210	26.541	-23.459	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Personal Computer
 Test Item : Conducted Emission Test
 Test Site : No.SR8
 Test Date : 2019/06/20
 Test Mode : Mode 2: Transmit 12V

Line1



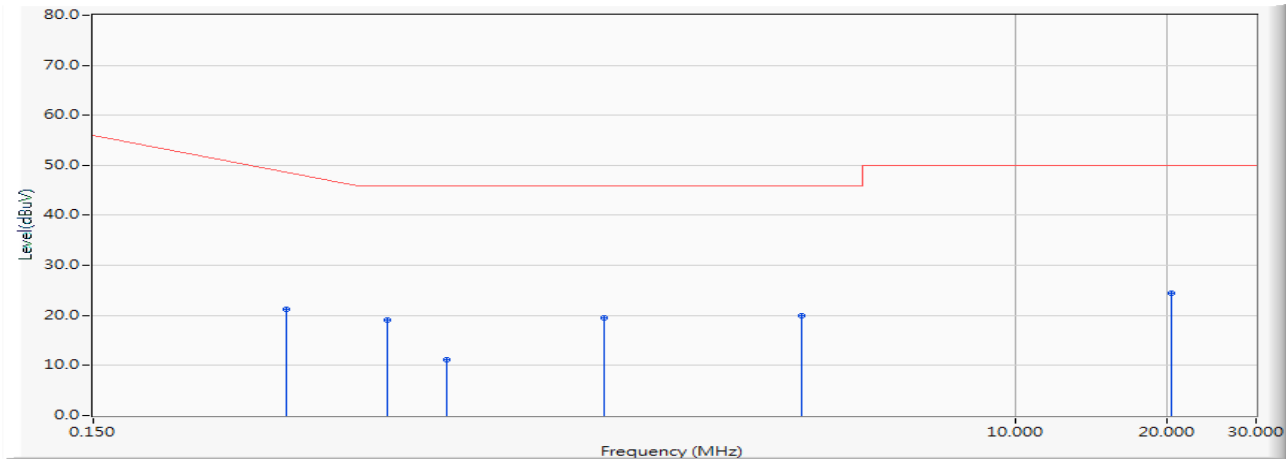
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.361	9.664	24.900	34.564	-25.407	59.971	QUASIPeAK
2	*	0.572	9.673	21.960	31.633	-24.367	56.000	QUASIPeAK
3		0.752	9.680	14.240	23.920	-32.080	56.000	QUASIPeAK
4		1.537	9.722	17.120	26.842	-29.158	56.000	QUASIPeAK
5		3.775	9.796	16.760	26.556	-29.444	56.000	QUASIPeAK
6		20.462	10.156	22.980	33.136	-26.864	60.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Personal Computer
 Test Item : Conducted Emission Test
 Test Site : No.SR8
 Test Date : 2019/06/20
 Test Mode : Mode 2: Transmit 12V

Line1



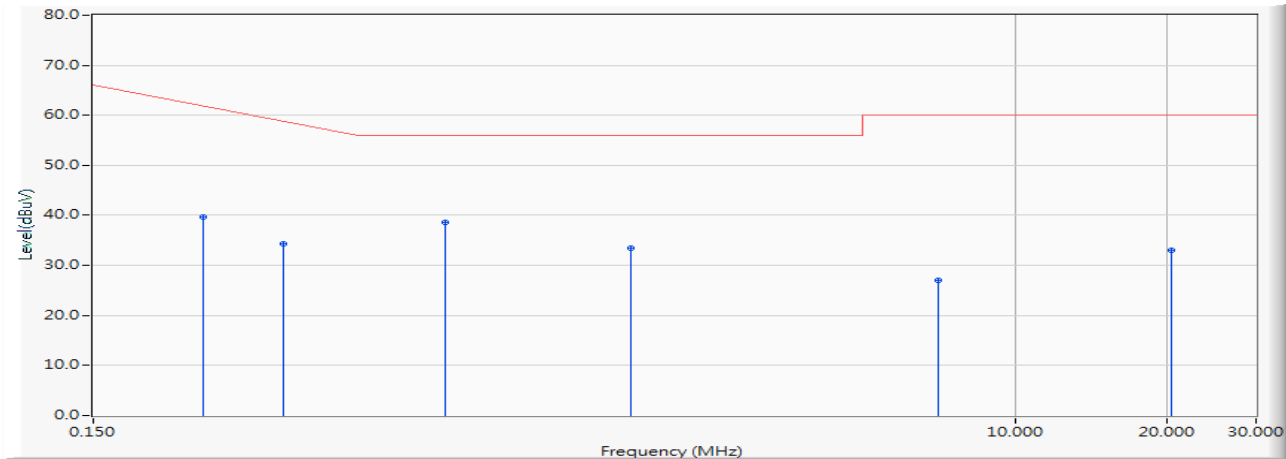
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.361	9.664	11.520	21.184	-28.787	49.971	AVERAGE
2		0.572	9.673	9.510	19.183	-26.817	46.000	AVERAGE
3		0.752	9.680	1.410	11.090	-34.910	46.000	AVERAGE
4		1.537	9.722	9.740	19.462	-26.538	46.000	AVERAGE
5		3.775	9.796	10.190	19.986	-26.014	46.000	AVERAGE
6	*	20.462	10.156	14.320	24.476	-25.524	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Personal Computer
 Test Item : Conducted Emission Test
 Test Site : No.SR8
 Test Date : 2019/06/20
 Test Mode : Mode 2: Transmit 12V

Line2



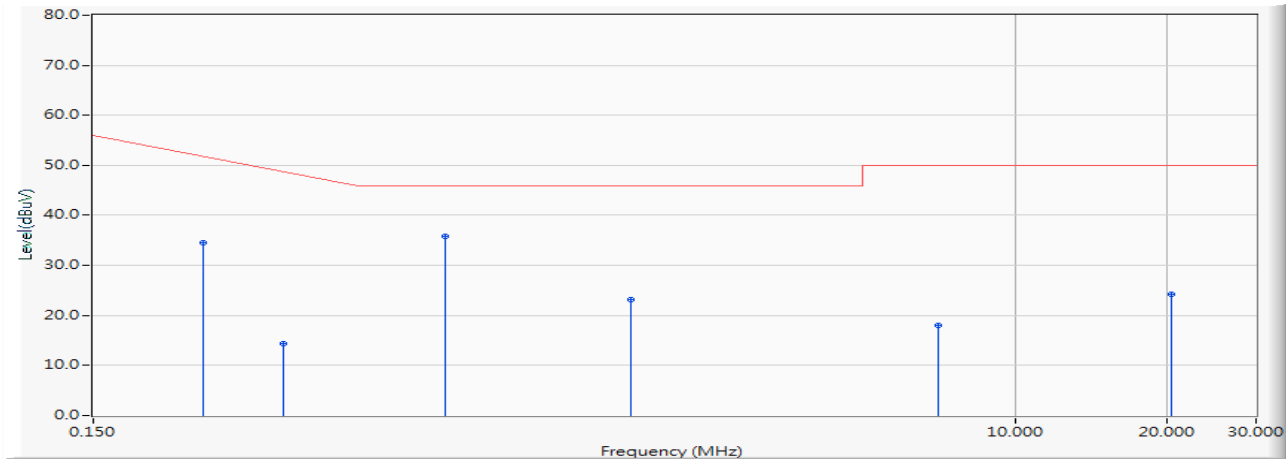
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.248	9.690	30.020	39.710	-23.490	63.200	QUASIPeAK
2		0.357	9.694	24.700	34.394	-25.692	60.086	QUASIPeAK
3	*	0.744	9.720	28.860	38.580	-17.420	56.000	QUASIPeAK
4		1.732	9.770	23.640	33.410	-22.590	56.000	QUASIPeAK
5		7.029	9.950	17.080	27.030	-32.970	60.000	QUASIPeAK
6		20.439	10.336	22.800	33.136	-26.864	60.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. “ ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Personal Computer
 Test Item : Conducted Emission Test
 Test Site : No.SR8
 Test Date : 2019/06/20
 Test Mode : Mode 2: Transmit 12V

Line2



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.248	9.690	24.850	34.540	-18.660	53.200	AVERAGE
2		0.357	9.694	4.770	14.464	-35.622	50.086	AVERAGE
3	*	0.744	9.720	26.050	35.770	-10.230	46.000	AVERAGE
4		1.732	9.770	13.310	23.080	-22.920	46.000	AVERAGE
5		7.029	9.950	8.150	18.100	-31.900	50.000	AVERAGE
6		20.439	10.336	13.890	24.226	-25.774	50.000	AVERAGE

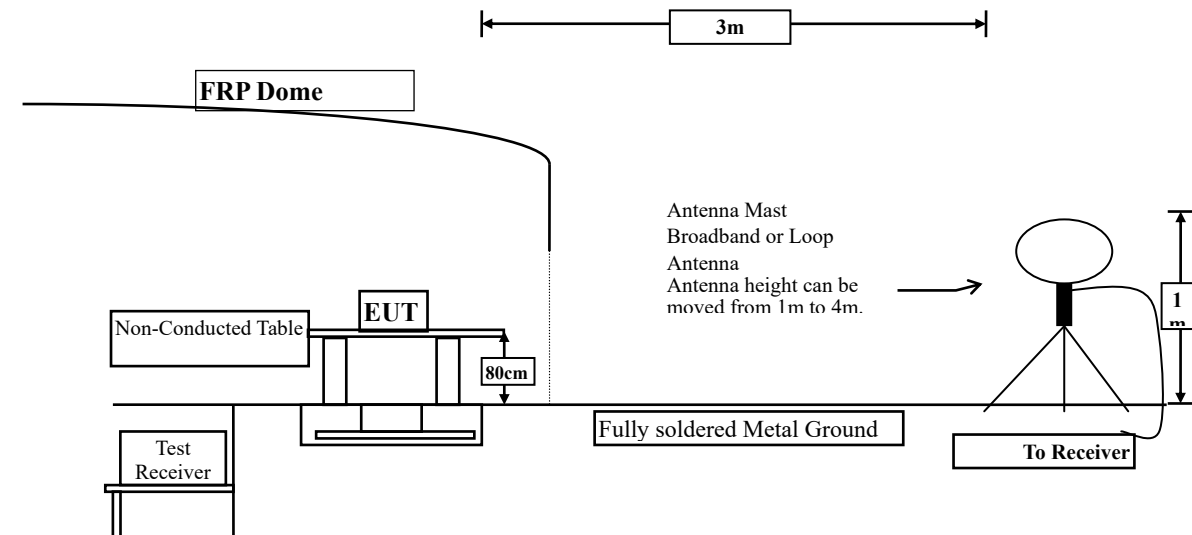
Note:

1. All Reading Levels are Quasi-Peak and average value.
2. "■" means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

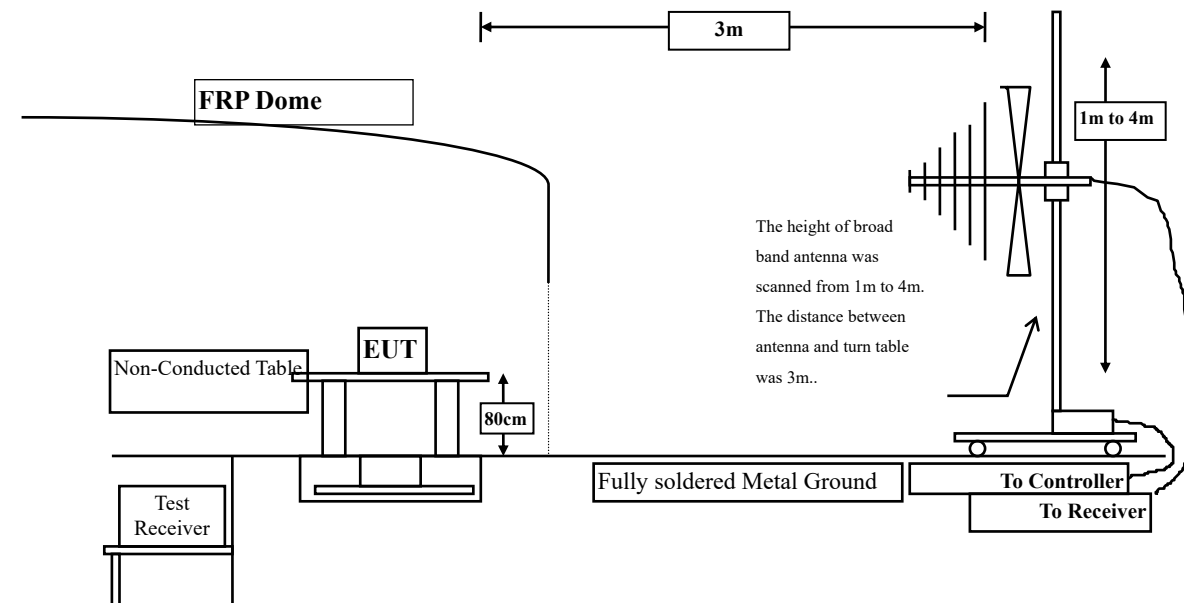
3. Radiated Emission

3.1. Test Setup

Under 30MHz Test Setup



Radiated Emission Below 1GHz



3.2. Limits

FCC Part 15 Subpart B Paragraph 15.209 Limits		
Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 - 0.490	2,400/F(kHz)	300
0.490– 1.705	24,000/F(kHz)	30
1.705 – 30	30	30
30 – 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

Remarks : 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested compliance to FCC 47CFR 15.209 requirements.

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz. Radiated emission measurements below 1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The worst radiated emission is measured on the Final Measurement.

The measurement frequency range from 9kHz - 10th Harmonic of fundamental was investigated.

3.4. Uncertainty

± 4.08 dB above 1GHz

± 4.22 dB below 1GHz

3.5. Test Result of Radiated Emission

Product	Personal Computer
Test Item	Fundamental Radiated Emission
Test Site	No.4 EMC fully Chamber
Date of Test	2019/06/07
Test Mode	Mode 1: Transmit 5V

Horizontal

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	0.125	19.993	62.200	82.193	-37.954	105.666	Average

Vertical

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	0.125	19.993	61.100	81.093	-39.054	105.666	Average

Note:

1. Limit=25.666 dBuV/300m + 40*Log (300(m)/3(m))= 105.666dBuV/3m (Average).
2. Measurement Level = Reading Level + Correct Factor.

Product	Personal Computer
Test Item	Fundamental Radiated Emission
Test Site	No.4 EMC fully Chamber
Date of Test	2019/06/07
Test Mode	Mode 2: Transmit 12V

Horizontal

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	0.125	19.993	61.600	81.593	-38.554	105.666	Average

Vertical

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	0.125	19.993	60.500	80.493	-39.654	105.666	Average

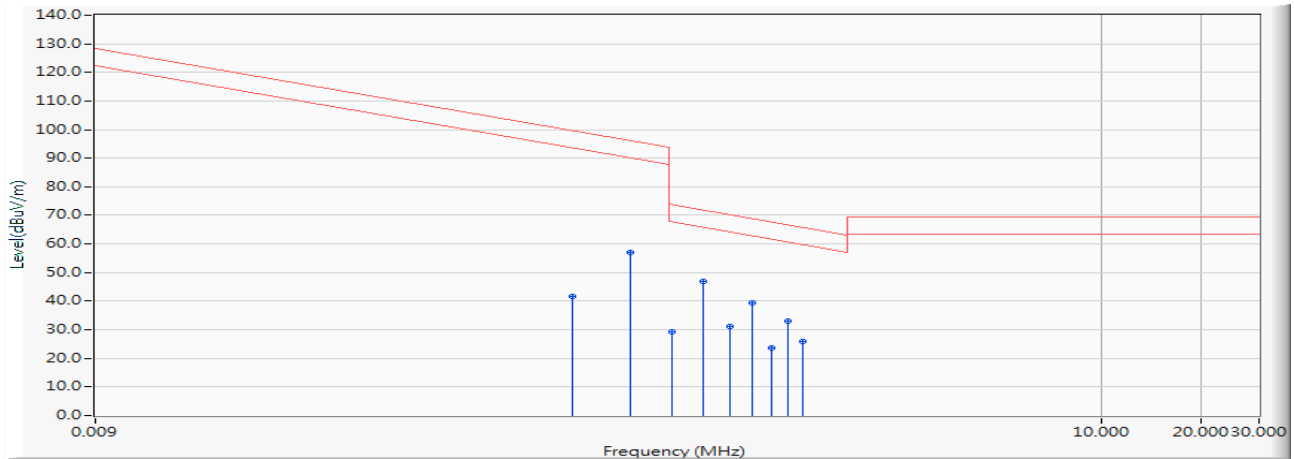
Note:

1. Limit=25.666 dBuV/300m + 40*Log (300(m)/3(m))= 105.666dBuV/3m (Average).
2. Measurement Level = Reading Level + Correct Factor.

Product	Personal Computer
Test Item	General Radiated Emission
Test Site	No.4 EMC fully Chamber
Date of Test	2019/06/07
Test Mode	Mode 1: Transmit 5V (9k-30M)

9kHz~30MHz

Horizontal



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		0.250	19.929	21.600	41.529	-69.595	111.124	QUASIPeAK
2		0.375	19.900	37.200	57.100	-45.001	102.101	QUASIPeAK
3		0.500	19.900	9.500	29.400	-44.311	73.711	QUASIPeAK
4	*	0.625	19.900	27.100	47.000	-25.602	72.602	QUASIPeAK
5		0.750	19.900	11.100	31.000	-40.492	71.492	QUASIPeAK
6		0.875	19.900	19.500	39.400	-30.982	70.382	QUASIPeAK
7		1.000	19.900	3.600	23.500	-45.773	69.273	QUASIPeAK
8		1.125	19.868	13.300	33.168	-34.995	68.163	QUASIPeAK
9		1.250	19.836	5.900	25.736	-41.317	67.053	QUASIPeAK

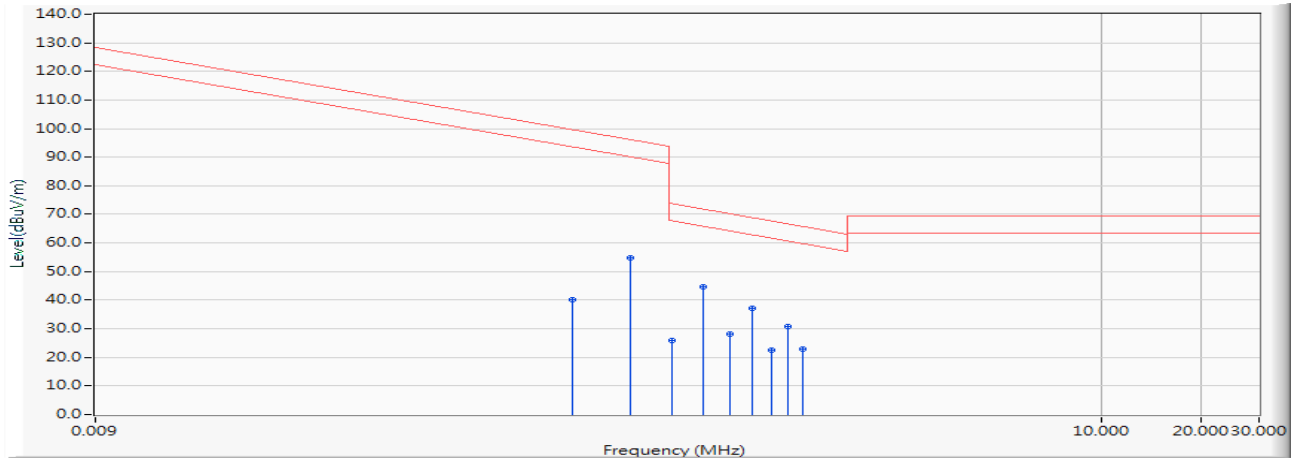
Note:

1. All Readings below 1GHz are Quasi-Peak.
2. Measurement Level = Reading Level + Correct Factor.
3. “*” means the worst emission level.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Personal Computer
Test Item	General Radiated Emission
Test Site	No.4 EMC fully Chamber
Date of Test	2019/06/07
Test Mode	Mode 1: Transmit 5V (9k-30M)

9kHz~30MHz

Vertical



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		0.250	19.929	20.100	40.029	-71.095	111.124	QUASIPeAK
2		0.375	19.900	34.900	54.800	-47.301	102.101	QUASIPeAK
3		0.500	19.900	6.100	26.000	-47.711	73.711	QUASIPeAK
4	*	0.625	19.900	24.600	44.500	-28.102	72.602	QUASIPeAK
5		0.750	19.900	8.200	28.100	-43.392	71.492	QUASIPeAK
6		0.875	19.900	17.100	37.000	-33.382	70.382	QUASIPeAK
7		1.000	19.900	2.500	22.400	-46.873	69.273	QUASIPeAK
8		1.125	19.868	10.800	30.668	-37.495	68.163	QUASIPeAK
9		1.250	19.836	3.200	23.036	-44.017	67.053	QUASIPeAK

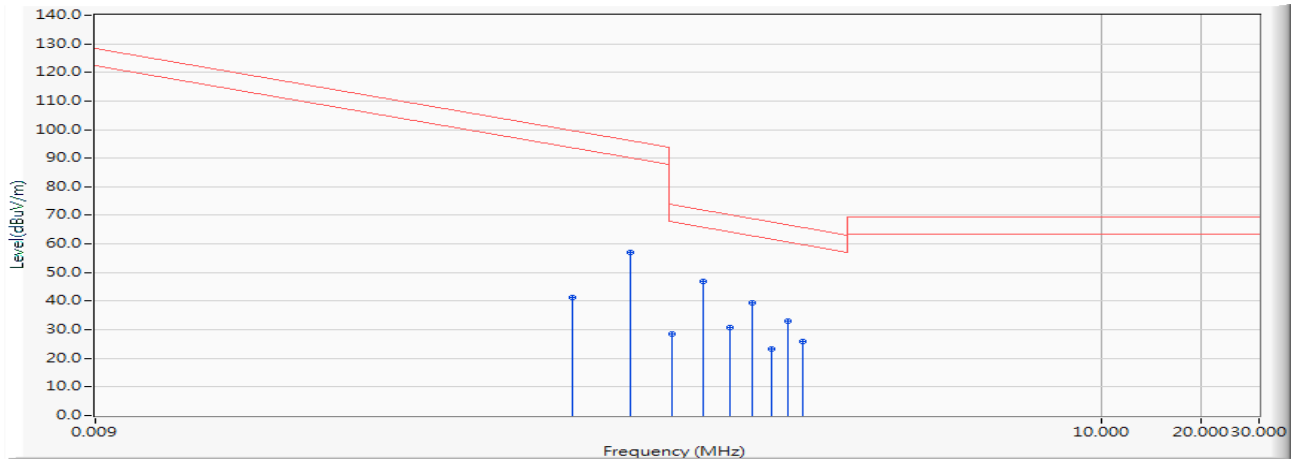
Note:

1. All Readings below 1GHz are Quasi-Peak.
2. Measurement Level = Reading Level + Correct Factor.
3. “” means the worst emission level.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Personal Computer
Test Item	General Radiated Emission
Test Site	No.4 EMC fully Chamber
Date of Test	2019/06/07
Test Mode	Mode 2: Transmit 12V (9k-30M)

9kHz~30MHz

Horizontal

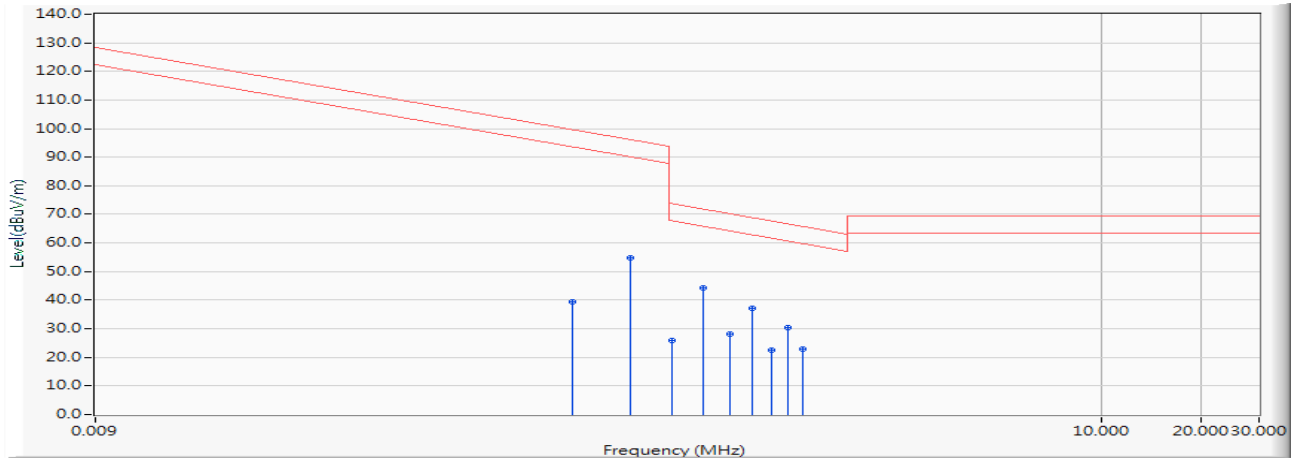


		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		0.250	19.929	21.300	41.229	-69.895	111.124	QUASIPeAK
2		0.375	19.900	37.200	57.100	-45.001	102.101	QUASIPeAK
3		0.500	19.900	8.500	28.400	-45.311	73.711	QUASIPeAK
4	*	0.625	19.900	27.100	47.000	-25.602	72.602	QUASIPeAK
5		0.750	19.900	10.900	30.800	-40.692	71.492	QUASIPeAK
6		0.875	19.900	19.500	39.400	-30.982	70.382	QUASIPeAK
7		1.000	19.900	3.500	23.400	-45.873	69.273	QUASIPeAK
8		1.125	19.868	13.100	32.968	-35.195	68.163	QUASIPeAK
9		1.250	19.836	5.900	25.736	-41.317	67.053	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak.
2. Measurement Level = Reading Level + Correct Factor.
3. “*” means the worst emission level.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Personal Computer
Test Item	General Radiated Emission
Test Site	No.4 EMC fully Chamber
Date of Test	2019/06/07
Test Mode	Mode 2: Transmit 12V (9k-30M)

9kHz~30MHz**Vertical**

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		0.250	19.929	19.500	39.429	-71.695	111.124	QUASIPeAK
2		0.375	19.900	34.900	54.800	-47.301	102.101	QUASIPeAK
3		0.500	19.900	6.100	26.000	-47.711	73.711	QUASIPeAK
4	*	0.625	19.900	24.500	44.400	-28.202	72.602	QUASIPeAK
5		0.750	19.900	8.100	28.000	-43.492	71.492	QUASIPeAK
6		0.875	19.900	17.100	37.000	-33.382	70.382	QUASIPeAK
7		1.000	19.900	2.800	22.700	-46.573	69.273	QUASIPeAK
8		1.125	19.868	10.700	30.568	-37.595	68.163	QUASIPeAK
9		1.250	19.836	3.100	22.936	-44.117	67.053	QUASIPeAK

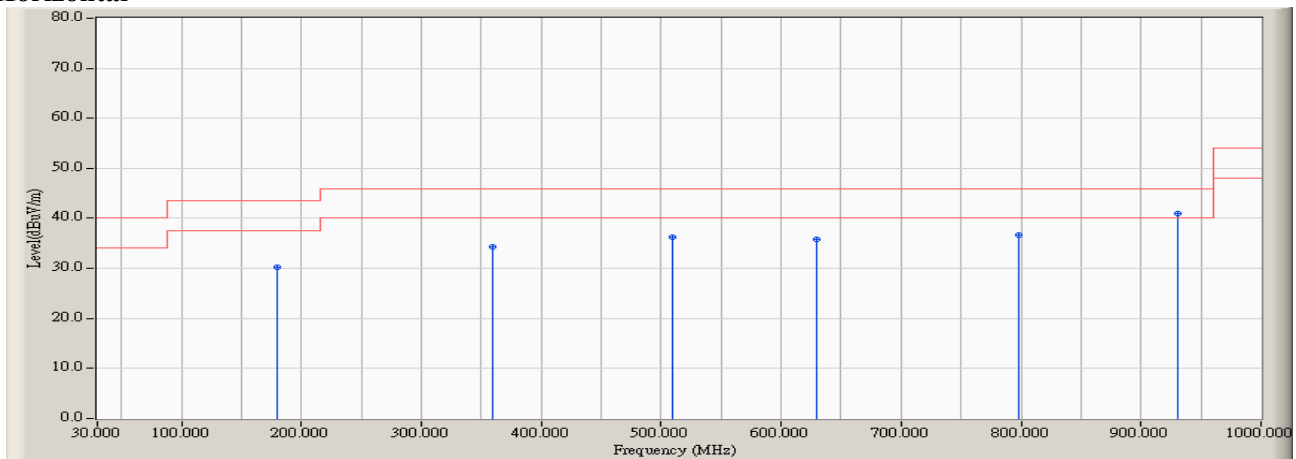
Note:

1. All Readings below 1GHz are Quasi-Peak.
2. Measurement Level = Reading Level + Correct Factor.
3. “*” means the worst emission level.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	Personal Computer
Test Item	General Radiated Emission
Test Site	No.7 EMC fully Chamber
Date of Test	2019/06/03
Test Mode	Mode 1: Transmit 5V (30M-1G)

30MHz~1GHz

Horizontal



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		179.380	17.236	13.081	30.317	-13.183	43.500	QUASIPeAK
2		359.800	23.591	10.657	34.248	-11.752	46.000	QUASIPeAK
3		509.180	26.463	9.715	36.178	-9.822	46.000	QUASIPeAK
4		629.460	28.190	7.616	35.806	-10.194	46.000	QUASIPeAK
5		798.240	29.633	7.129	36.762	-9.238	46.000	QUASIPeAK
6	*	930.160	31.273	9.683	40.956	-5.044	46.000	QUASIPeAK

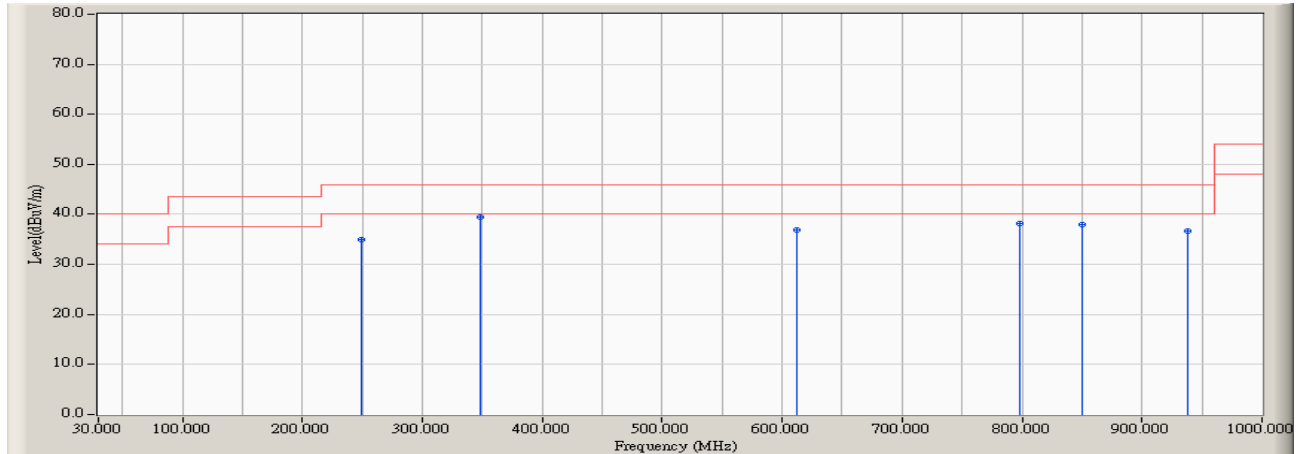
Note:

1. The reading levels below 1GHz are quasi-peak values.
2. “” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

Product	Personal Computer
Test Item	General Radiated Emission
Test Site	No.7 EMC fully Chamber
Date of Test	2019/06/03
Test Mode	Mode 1: Transmit 5V (30M-1G)

30MHz~1GHz

Vertical



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		249.220	20.618	14.408	35.026	-10.974	46.000	QUASIPeAK
2	*	348.160	23.248	16.316	39.564	-6.436	46.000	QUASIPeAK
3		612.000	27.949	8.966	36.915	-9.085	46.000	QUASIPeAK
4		798.240	29.633	8.463	38.096	-7.904	46.000	QUASIPeAK
5		850.620	30.533	7.508	38.041	-7.959	46.000	QUASIPeAK
6		937.920	31.396	5.328	36.724	-9.276	46.000	QUASIPeAK

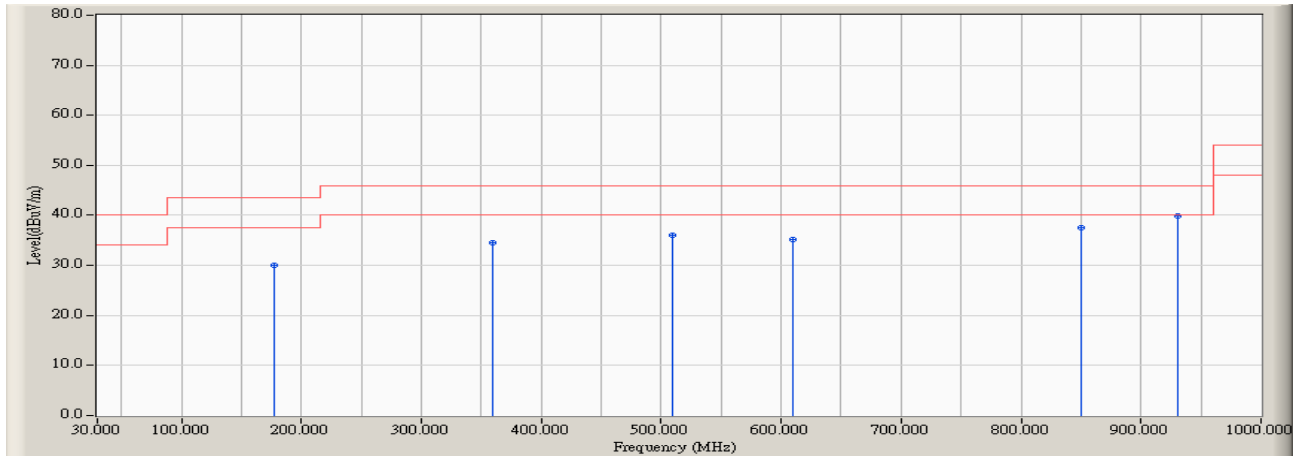
Note:

1. The reading levels below 1GHz are quasi-peak values.
2. “” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

Product	Personal Computer
Test Item	General Radiated Emission
Test Site	No.7 EMC fully Chamber
Date of Test	2019/06/03
Test Mode	Mode 2: Transmit 12V (30M-1G)

30MHz~1GHz

Horizontal



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		177.440	17.290	12.820	30.110	-13.390	43.500	QUASIPeAK
2		359.800	23.591	11.012	34.603	-11.397	46.000	QUASIPeAK
3		509.180	26.463	9.557	36.020	-9.980	46.000	QUASIPeAK
4		610.060	27.924	7.267	35.191	-10.809	46.000	QUASIPeAK
5		850.620	30.533	6.990	37.523	-8.477	46.000	QUASIPeAK
6	*	930.160	31.273	8.639	39.912	-6.088	46.000	QUASIPeAK

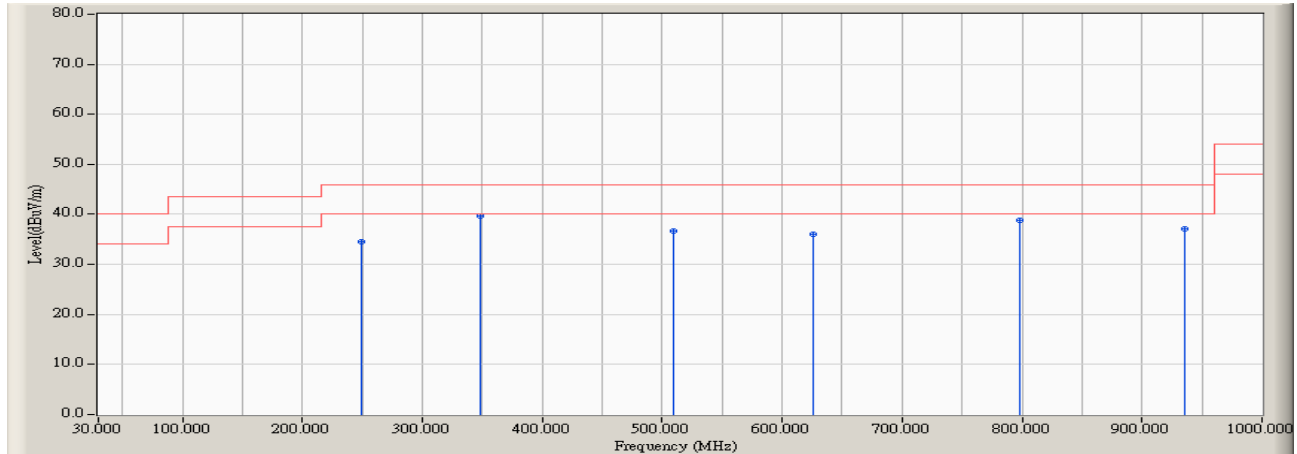
Note:

1. The reading levels below 1GHz are quasi-peak values.
2. “” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

Product	Personal Computer
Test Item	General Radiated Emission
Test Site	No.7 EMC fully Chamber
Date of Test	2019/06/03
Test Mode	Mode 2: Transmit 12V (30M-1G)

30MHz~1GHz

Vertical



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		249.220	20.618	13.977	34.595	-11.405	46.000	QUASIPeAK
2	*	348.160	23.248	16.533	39.781	-6.219	46.000	QUASIPeAK
3		509.180	26.463	10.134	36.597	-9.403	46.000	QUASIPeAK
4		625.580	28.150	7.860	36.010	-9.990	46.000	QUASIPeAK
5		798.240	29.633	9.217	38.850	-7.150	46.000	QUASIPeAK
6		935.980	31.362	5.796	37.158	-8.842	46.000	QUASIPeAK

Note:

1. The reading levels below 1GHz are quasi-peak values.
2. “” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.
4. The radiated emissions below 1GHz of the lowest, middle, highest frequency are pretested. Only the worst case is shown on the report.

4. EMI Reduction Method During Compliance Testing

No modification was made during testing.